

1969

DASA 1243

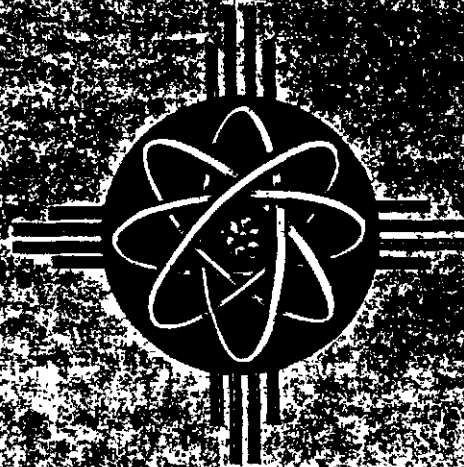
Revised

DTL 107 221

List of Military and Civil Defense

RADIAC DEVICES

DNA1.941006.014



~~DISPROSED DISTRIBUTION STATEMENT~~

~~Each transmittal of this report outside the agencies of the Government must have prior approval of the Director, Defense Atomic Support Agency, Washington, D.C. 20305~~

RECORD COPY

DEFENSE ATOMIC SUPPORT AGENCY

WASHINGTON, D.C. 20305

HRE-163

DOD-IMPOSED DISTRIBUTION STATEMENT

Each transmittal of this report must have the agencies of the U.S. Government and Atomic Support Agency, Washington, D.C. 20305.

SUPERSEDE NOTICE

This report supersedes DASA 1243 Revised of Military and Civil Defense Radiac Devices 1966 Edition.

DISPOSITION INSTRUCTIONS

Destroy this report when it is no longer needed. Do not return to sender.

LIST OF MILITARY AND CIVIL DEFENSE

RADIAC DEVICES

1969

AUGUST 1969

"Each transmittal of this report outside the agencies of the U. S. Government must have prior approval of the Director, Defense Atomic Support Agency, Washington, D. C. 20305."

Prepared by
Research and Development Liaison Directorate
Field Command, Defense Atomic Support Agency
Sandia Base, New Mexico 87115

ABSTRACT

A compilation of radiac devices currently available to the Department of Defense is presented. The list is separated into rate meters, dosimeters, miscellaneous radiac equipment for calibration and special purposes, and major research and development items. Each item includes nomenclature, classification, federal stock number, cost, sponsoring agency and a description of the item.

Letter of Promulgation

This "List of Military and Civil Defense Radiac Devices" is a compilation of information on radiac devices currently available to the Department of Defense. Information on major research and development items currently under investigation is also included.

The radiac information included herein has been furnished by the agencies sponsoring the various devices. It is intended for use as a convenient reference document for agencies associated with radiac developments.



RICHARD M. SCOTT
Brigadier General, USAF
Deputy Director (Ops & Admin)

TABLE OF CONTENTS

<u>SECTION A - RATE METERS</u>	<u>PAGE</u>
A-1 Low Range Survey Meters	1
A-2 High Range Survey Meters	2
A-3 Alpha Detectors	5
A-4 Neutron Detectors	6
A-5 Special Purpose Rate Meters	7
A-6 Training Devices	9
 <u>SECTION B - DOSIMETERS</u>	
B-1 Self Indicating Dosimeters	10
B-2 Non-Self Indicating Dosimeters	12
B-3 Alarm Type Dosimeters	12
B-4 Chargers and Readers	12
 <u>SECTION C - MISCELLANEOUS RADIAC EQUIPMENT</u>	
C-1 Calibration Sources	14
C-2 Special Purpose Equipment	17
 <u>SECTION D - RESEARCH AND DEVELOPMENT ITEMS</u>	
D-1 Survey Meters	20
D-2 Dosimetry	20
D-3 Special Purpose Meters	21
D-4 Miscellaneous	23
 <u>SECTION E - SUPPLEMENTARY INFORMATION</u>	
E-1 Definition of Usage Classification	25
E-2 Organizational Abbreviations	25
 <u>SECTION F - INDEX</u>	26
 <u>DISTRIBUTION LIST</u>	31

DEFENSE ATOMIC SUPPORT AGENCY
Washington, D. C. 20301

LIST OF MILITARY AND CIVIL DEFENSE RADIAC DEVICES

SECTION A

RATE METERS

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORIN AGENCY
<u>Sub Section A-1: Low Range Survey Meters</u>					
1.	AN/PDR-27 (D)	Obsolescent	226665-286-1005	\$147.75	NAVELEX
	(E)	Obsolescent	226665-641-0442		
	(F)	Obsolescent	226665-641-0228		
	(G)	Obsolescent	226665-599-7799		
	(H)	Obsolescent	226665-509-6280		
	(J)	Standard	226665-543-1435		
	(L)	Limited Std.	226665-856-3456		
	(P)	Standard	226665-975-7222		
	(Q)	Standard	226665-017-8903		
	(R)	Standard	226665-961-0846		

DESCRIPTION: Beta-Gamma Survey Meter employing halogen filled GM counters. One GM counter has a thin mica end window and is housed in the probe. Range 0-0.5 and 0-5 mr/hr. Beta capability by removing metal shield from end of probe. Second GM tube in radiacmeter housing for 0-50 and 0-500 mr/hr. For AN/PDR-27 (J), (L), (P), (Q), and (R) both GM counters are mounted in the probe assembly and powered from 6 type JAN-BA-30, 1½ volt commercial "D" cells. Size and Weight: AN/PDR-27 (D), (E), and (G)- 5¼" x 10½" x 8", 10 lbs; AN/PDR-27 (F), (H), (J), (L), (P), (Q), and (R)-approximately 5¼" x 8" x 8", 8 lbs. By G. E., Admiral, Hoffman, Nems-Clarke, Chatham, Specialty Engineering Northeastern Engineering, Watson Electronics, Industrial Electronics Hardware Corporation, Electro-Neutronics, Multitronics.

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
2.	AN/PDR-66	Standard	2Z6665-226-5392	\$470.00	NAVELEX

DESCRIPTION: Beta-Gamma Survey Meter similar to the AN/PDR-27 () except that the high range has been changed to 1000 mr/hr full scale and a directional probe has been added as an accessory. Used for locating "hot spots" of radioactive material. By: General Electric Corporation and Portsmouth Naval Shipyard.

3.	CD V-700	Standard	None	\$19.25	OCD
----	----------	----------	------	---------	-----

DESCRIPTION: A GM probe type beta-gamma discriminating survey instrument for monitoring personnel, food and water, follow-up monitoring of areas for human habitation and food production, training. Ranges: 0-0.5, 0-5, and 0-50 mr/hr. By: Anton, Victorson, Electro-Neutronics, Inc., and Lionel.

Sub Section A-2: High Range Survey Meters

4.	AN/PDR-39	Alternate Std.	F6665-530-3076	\$90.00	AMC
		(A)Alternate Std.	F6665-530-3076		

DESCRIPTION: Ionization Chamber Survey Meter. Five range scales: 0-5, 0-50, 0-500, 0-5000, and 0-50,000 mr/hr, gamma only. Includes internal check source. The AN/PDR-39(A) has improved component assembly and construction. Size and Weight: 10 $\frac{1}{2}$ " x 6 $\frac{1}{4}$ " x 8"; 11 lbs. By: Tracerlab, Taffet, and Eltronics.

5.	AN/PDR-43	Limited Std.	2Z6665-580-9646	\$175.52	NAVELEX
		(A) Limited Std.	2Z6665-690-5279		
		(B) Standard	2Z6665-474-4186		
		(C) Standard	2Z6665-560-7241		
		(D) Standard	2Z6665-738-5867		

DESCRIPTION: Miniature pulsed, halogen filled, GM type, Beta-Gamma Survey Meter with transistorized power supply. Mica end window has beta detection capability. Ranges: 0-5, 0-50, and 0-500 r/hr. Utilizes scale changing meter.* Powered from two JAN-PA-30, 1 $\frac{1}{2}$ volt, commercial "D" cells. Size and Weight: Approximately 8" x 4" x 3 $\frac{1}{2}$ "; 4 $\frac{1}{4}$ lbs. By: Electronic Products and Electro Neutronics.

* AN/PDR-43 and 43(A)-Check source in external rotatable disc on bottom of radiacmeter housing. AN/PDR-43 (B), (C), and (D)-Check source inside of radiacmeter housing controlled by knob on top panel.

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
6.	AN/PDR-45	Limited Std.	2Z6665-558-0246	\$390.00	NAVELEX
		(A) Standard	2Z6665-618-0117		
		(B) Standard	2Z6665-023-1820		
		(C) Standard	2Z6665-903-9080		
		(D) Standard	2Z6665-949-3295		

DESCRIPTION: Pulsed, halogen filled GM counter, high range Beta-Gamma Probe Type Survey Meter for use aboard Nuclear Powered Ships. Detects beta, measures gamma radiation. Probe houses GM counter and is connected to the radiacmeter with a semi-flexible cable 40" long. Range 0.5-500 r/hr. Uses transistorized power supply. Powered from two JAN-BA-30, 1½ volt, commercial "D" cells. Size and Weight: Approximately 9¼" x 5" x 7½"; 5 lbs (less probe). The AN/PDR-45, (A), (B), (C), and (D) are electrically and mechanically interchangeable. By: Electronic Products and Gulf Aero Space.

7.	AN/PDR-63/PD	Standard	Not assigned	\$600.00	NAVELEX
----	--------------	----------	--------------	----------	---------

DESCRIPTION: A multi-purpose radiac set designed for field combat or fleet use. It consists of three parts: (1) The principal package for measuring high intensities of gamma radiation - 4 scales (0-1-10-100-1000) r/hr. (2) plug-in probe for skin-dose measurement - readout on 2 scales (0-500-5000) r/hr. (3) plus-on low range probe for gamma measurement and beta detection capability - readout on 4 scales (0-1-10-100-1000) mr/hr. All switching and readout take place on the basic module (principal package).

8.	AN/PDR-65	Standard	Not assigned	\$700.00	NAVELEX
----	-----------	----------	--------------	----------	---------

DESCRIPTION: Combination dosimeter and ratemeter operating with a single re-cycling ionization chamber. Capable of measuring gamma rates and doses to 10,000 r/hr and 10,000 r, respectively. Digital readout for dose; meter readout for rate. Speaker type alarm indication at predetermined setting. Designed to have utility as a fixed system or portable unit. Ionization chamber can be placed up to 500 feet from the meter. Size and Weight: 5" x 7½" x 5"; 5¼ lbs. By: Multronics.

9.	AN/PDR-68	Standard	2Z6665-966-3623	\$728.00	NAVELEX
----	-----------	----------	-----------------	----------	---------

DESCRIPTION: A Beta-Gamma Survey Meter covering the wide range of 0-5000 r in eight decades on a scale changing meter. Beta measurement capability on three ranges; 0-50 mr/hr, 0-500 mr/hr and 0-5 r/hr (specific geometry and isotope must be given). Gamma directional capability on three decades; 0-50 mr/hr, 0-500 mr/hr, and 0-5 r/hr. Powered by 6 BA-30, 1½ volt, commercial "D" cells. Size and Weight: 10" x 6" x 5" 8 lbs. By: NUCOR.

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
10.	CD V-715	Standard	None	\$15.86	OCD
<u>DESCRIPTION:</u> A high range survey meter for ground survey. Range: 0-0.5, 0-5, 0-50, and 0-500 r/hr. By: Lionel, Victoreen, and Landers-Frary-Clark.					
11.	CD V-717	Standard	None	\$30.82	OCD
<u>DESCRIPTION:</u> Portable ion chamber survey meter, gamma only, with remote reading feature to 25 ft. Uses one "D" cell. Ranges; 0-0.5, 0-5, 0-50, 0-500 r/hr. Accuracy: \pm 20%. By: Victoreen					
12.	CD V-720	Standard	None	\$23.30	OCD
<u>DESCRIPTION:</u> Beta-Gamma discriminating survey meter for use in areas of extremely high contamination, and for making high level beta radiation measurements. Range: 0-5, 0-50, and 0-500 r/hr. By: Victoreen and Landers-Frary-Clark.					
13.	IM-174/PD	Limited Std.	F6665-580-1793	\$44.50	AMC
	IM-174A/PD	Standard	F6665-999-5145	\$60.00	AMC
<u>DESCRIPTION:</u> IM-174/PD: Miniature, ion chamber gamma survey meter. Range: 1 to 500 r/hr on logarithmic meter scale and 0.1 to 10 r/hr on second scale when check switch is depressed. Uses 1 each BA-1288/U and 2 each BA-1318/U small mercury cells. L-shaped metal case.* Size and Weight: 6 $\frac{1}{2}$ " x 4 1/8" x 4 $\frac{1}{4}$ "; 3 3/4 lbs (without batteries). By: Landsverk, Jordan. Note: IM-108/PD is obsolete. IM 108(A)/PD is depot modified to IM-174/PD.					
<u>DESCRIPTION:</u> IM-174A/PD: Miniature, ion chamber gamma survey meter. Range: 1 to 500 r/hr. Uses two each BA-1006/U, two each BA-1391/U and two each BA-1396/U mercury cells. L-shaped metal case.* Size and Weight: 6 3/4" x 4 $\frac{1}{4}$ " x 4 3/4"; 4 lbs., 2 oz.					
*Includes carry case (canvas) CY-22461PD, FSN 6665-580-1792.					
14.	IM-179/PD	Standard	F6665-956-0327	\$26.50	SAAMA, AFLC
<u>DESCRIPTION:</u> A miniature gamma ratemeter for placement in aircrew survival kits. Range: 0.02 r/hr to 200 r/hr on a pseudo-logarithmic scale. The detector is a pressurized ion chamber and the power source is two mercury cells. Push button controls are provided for read and test functions. Meter and dial are luminescent. A metal loop is provided for carrying by belt or lanyard. Size and Weight: 2 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " x 1 $\frac{1}{4}$ "; approximately 9 ozs. By: Victoreen, Nuclear Corporation of America, and Jordan Electronics.					

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
------------	--------------	-------------------------	------------------	--------------------------	----------------------

Sub Section A-3: Alpha Detectors

15.	AN/PDR-56	Alternate Std.	2Z6665-793-3006	\$300.00	NAVELEX
	(A)	Standard	2Z6665-086-8060		
	(B)	Standard	2Z6665-078-5657		
	(C)	Standard	2Z6665-759-5645		
	(D)	Standard	2Z6665-053-3391		

DESCRIPTION: Alpha survey meter using scintillation type detector. Covers 0-10⁶ counts per minute in 4 linear scales. Probe separable from radiacmeter. Extension accessory for probe handle permits survey of floor and ground areas while operator is in upright position. Small auxiliary probe provided for monitoring irregular objects. Operates from two JAN-BA-30 type "D", 1½ volt, flashlight cells. Size: Radiacmeter approximately 7 3/4"L x 4½"W x 3½"H (less handle), with handle 6"H, probe approximately 8"L x 3"W x 2"H (less handle), with handle 8½"H. Weight: Approximately 7½ lbs with main probe and batteries. By: Tracerlab, Nuclear Research Corp., Electro-Neutronics, and Gulf Aerospace. Note: Item 16, DT-302, Auxiliary Plutonium X-Ray Probe.

16.	DT-302/PDR-56	Tentative Std.	Not Assigned		NAVELEX
-----	---------------	----------------	--------------	--	---------

DESCRIPTION: A scintillation phosphor probe including photomultiplier tube, transistor amplifier and pulse height selection circuitry for use in detecting X-rays resulting from plutonium contamination. The PDR-56, A, B, and C require a field change to incorporate a connector to use the auxiliary probe. Size and Weight: 10" L x 2"D; 3 lbs. By: Gulf Aerospace.

17.	AN/PDR-60	Limited Std.	F6665-580-3020	\$750.00	SAAMA, AFLC
-----	-----------	--------------	----------------	----------	-------------

DESCRIPTION: An alpha scintillation counter featuring a scintillation type probe, transistorized electronics mounted on three printed circuit cards which are readily removable, and a rechargeable six volt battery pack. Four ranges cover 0-2,000; 20,000; 200,000 and 2,000,000 counts per minute. The survey instrument weighs 6 lbs, 11 ozs. By: Eberline Instrument Corp. as PAC 1S.

18.	PAC-2GA; 3G; 4G; 5G	Limited Std.	F6665-581-2227	\$854.00	SAAMA, AFLC
-----	---------------------	--------------	----------------	----------	-------------

DESCRIPTION: A gas flow proportional alpha counter weighing approximately 8½ lbs. The battery complement consists of 4 Mercury cells; 2 type RM-42R, 2 type RM-3R. Ranges are 1,000; 10,000 and 100,000 counts per minute. Included with the instrument is a weatherproof carrying case containing 9 gas bottles, spare plug-in circuit card set, and a spare probe base. By: Eberline Instrument Corp.

ITEM NO	USAG NOMENCLATURE	CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
<u>Sub Section A-4: Neutron Detectors</u>					
19.	AN/PDR-47 () Limited Std.		226665-606-5286 226665-523-1323	\$1,100.00	NAVELEX
<u>DESCRIPTION:</u> Neutron Survey Meter used to measure fast neutron radiation in the energy range 0.2 Mev to 14 Mev. A methane proportional counter is used as the detector. Full scale range is 5, 50, and 500 mrep/hr. An integrating scale of 200 counts (1 mrep/count) forms a part of this instrument. Size and Weight: 10" x 7" x 5"; 8 lbs. Power supply is 6 BA-30 "D" cells. By: Nucor.					
20.	AN/PDR-49 () Limited Std.		226665-593-9713	\$725.00	NAVELEX
<u>DESCRIPTION:</u> Neutron Survey Meter used to measure thermal neutrons with a boron trifluoride counter as the detector. Full scale ranges are 250, 2500, and 25,000 counts per minute. An approximate estimated efficiency is 1 count per second for a flux of 10 n/cm ² /sec. Size and Weight: 10" x 8" x 5"; 7 3/4 lbs. By: Nuclear Chicago.					
21.	AN/PDR-64	Limited Std.	226665-764-5833	\$800.00	NAVELEX
<u>DESCRIPTION:</u> Neutron Survey Meter used to measure thermal neutrons with a boron trifluoride counter as the detector. Full scale ranges are 0-1, 0-10, 0-100 mrem/hr. Functionally equivalent to AN/PDR-49. Size and Weight: 9"L x 4 1/2"W x 3 3/4"D; 6 lbs. By: Electro-Neutronics					
22.	AN/PDR-70	Standard	None	\$1400.00	NAVELEX
<u>DESCRIPTION:</u> Battery operated Neutron Survey Set used to measure neutrons in energy range thermal - 14 Mev; measures neutron flux in mrem/hr; meter indicator and headphone. Range: 0-2, 20, 200, 2000 mrem/hr. Consists of Andersson-Braun Detector, radiacmeter, case and headset. Size and Weight: 19" x 24" x 13"; 45 lbs. By: Tracerlab Div. of LFE.					

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
------------	--------------	-------------------------	------------------	--------------------------	----------------------

Sub Section A-5: Special Purpose Rate Meters

23.	BROKEN ARROW RESPONSE KIT	Tentative Std.	Not Assigned	\$3336.00	AFWL
-----	------------------------------	----------------	--------------	-----------	------

DESCRIPTION: The kit for detecting low energy gamma and X-ray photons (10Kev-300Kev) consists of: a PRM-5 pulse rate meter, a five-inch (5" x 2mm NaI crystal) scintillation detector, a SPA-3 (2" x 2" NaI crystal) probe, a PG-2 (2" x 2 mm NaI crystal) probe, a check source of Am-241 (100 nCi), an SK-1 audible indicator, and an aluminum carrying case. The PRM-5 has a single-channel analyzer with an adjustable window, but three discrete channels of information may be monitored separately by switch-selection of high voltages. The count rate is indicated in counts per minute (cpm) with the Eberline LIN-LOG meter presentation, which obviates the need for scale switching or multiplying factors. Full scale readings for the four decades are 500, 5K, 50K, and 500K counts per minute. The power is furnished from five D-cells. An external battery pack may be used without removing the internal batteries. Weight: PRM-5, 5 lbs, 4 oz; 5" detector, 7 lbs; SPA-3, 3 lbs, 3 oz; PG-2, 2 lbs, 6 oz. By: Eberline Instrument Corp.

24.	AN/SDR-1	Obsolescent	2Z6665-1000-0018	\$1,486.95	NAVELEX
	AN/SDR-2	Obsolescent	2Z6665-0987-9610		

DESCRIPTION: Installed shipboard radiac system (gamma). Uses pulsed GM counter and recycling ionization chamber detection techniques. Range: 0-10,000 r/hr in 8 scales; 0-1, 0-10, 0-100, 0-1000 mr/hr, 0-10, 0-100, 0-1000, 0-10,000 r/hr. Local readout on all ranges at detector location. Remote readout on upper four ranges. Local alarm on lower four ranges. Training device to simulate high range indication. Line operated, standby battery power. Size and Weight: Approximately 20"W x 28"L x 8" D; approximately 100 lbs. By: Electronic Products and Nucor. Note: This item to be replaced by the AN/PDR-65 (Item 8)

25.	AN/PDR-59	Standard	Not Assigned	\$1,500.00	NAVELEX
-----	-----------	----------	--------------	------------	---------

DESCRIPTION: Underwater Swimmers Survey Monitor for gamma measurement to 1000 mr/hr. Scintillator circuitry and batteries in 3 foot pressurized probe. Audible and meter indication. Usable with swimmers sonar. Accessory device permits remote readout from surface. Weight: 15 lbs. By: Naval Research Laboratory, Electro-Neutronics, and Federal Television Corporation.

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
26.	MG-3	Limited Std.	F6665-841-7757	\$560.00	SAAMA, AFLC
<p><u>DESCRIPTION:</u> A semi-portable remote area monitor consisting of a coaxial ionization chamber connected to an indicator-recorder unit by 300 to 1000 feet of nine-conductor cable. Power requirements are 18 BA's of 5 types. Gamma radiation dose rates are presented logarithmically over the range: 0.5 to 1000 r/hr. Both audio and visual alarms are provided. Size: Detector approximately 8" x 8" x 8" and indicator-recorder 13" x 10" x 9". Weight: 35 lbs exclusive of cable. By Republic Electronic Industries, Inc. and Electospace.</p>					
27.	CD V-711	Standard	None	\$615.00	OCD
<p><u>DESCRIPTION:</u> Remote sensor radiation meter designed for the continuous measurement of gamma radiation exposure rate at an outside location, and displaying this information in a protected location up to 300 feet away. Consists of a detector unit, interconnecting cables, and the indicator unit which is calibrated in roentgens per hour. The ion chamber detector unit is located within a sealed dome-shaped housing which is built for mounting onto a pipe and designed to withstand a blast overpressure of at least 50 pounds per square inch. Operates on 9 "D" cells. Ranges: 0-1000, 0-100, 0-10, and 0-1 r/hr. Accuracy \pm 20%. By: Nuclear-Chicago</p>					
28.	CD V-711 Mark III Pending	None		\$450.00	OCD
<p><u>DESCRIPTION:</u> A low cost remote sensor radiation meter, gamma only, similar to the CDV-711. Sensors are not blast resistant. Remote capability is 2,000 ft. Operates on three "D" cells. Ranges: 0-10,000, 0-1,000, 0-100, 0-10, and 0-1 r/hr. Accuracy \pm 20%. By: Nuclear-Chicago.</p>					
29.	CD V-781-Model 1	Standard	None	\$748.41	OCD
<p><u>DESCRIPTION:</u> An Aerial Survey Meter specially designed for aerial monitoring of gamma radiation. It is adaptable to quick mounting into light aircraft. It consists of: Detector unit, metering unit, simulator unit (used in training), tape recorder and dosimeters. Operates on 8 "D" cell batteries or aircraft power (24 volts). Range: 0-0.1, 0-1, and 0-10 r/hr (cockpit dose rates). By: Nuclear-Chicago.</p>					

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
------------	--------------	-------------------------	------------------	--------------------------	----------------------

Sub Section A-6: Training Devices

30. AN/PDR-T6 Standard F6910-603-6919 AMC

DESCRIPTION: Radiac Survey Training Set designed to simulate physical appearance and operation of IM-174/PD. Consists of radio transmitter, omnidirectional antenna, 12 oscillators, 10 receivers. Powered by 12 volt batteries (or vehicular batteries). Frequency range: 3155 to 3400 Kc. Transmission range: Up to 11 miles. Developed by the Naval Special Devices Center for Army. By: Admiral (Development-Production).

31. CD V-457 Standard None \$127.75 OCD

DESCRIPTION: A GM type training kit consisting of an AC power operated instrument giving visible indication of radiation rates by means of a meter and a flashing light, and audible indication by means of a built-in speaker. A storage case is provided for the instrument and associated sources and demonstration equipment. By: Jordan, Nucleonic Corp.

32. Model 281A-L Standard F6910-561-2852 \$4,750.00 OOAMA, AFLC

DESCRIPTION: A portable radiation survey training device used to simulate radiation fallout over wide areas. Consists of 1 main transmitter, 2 "hot spot" transmitters, 6 simulated AN/PDR-43B receivers, and 2 simulated PAC-1S receivers. Main transmitter range 6x10 miles. Transmitter frequency 27.98 MC. Main transmitter powered with 12 volt automobile battery. Hot spot transmitters and receivers powered with 7.2 volt nickel cadmium rechargeable batteries.

SECTION B

DOSIMETERS

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
<u>Sub Section B-1: Self-Indicating Dosimeters</u>					
33.	CD V-138	Standard	None	\$4.70	OCD
<u>DESCRIPTION:</u> Self-reading quartz-fiber dosimeter for training and peacetime use. 0-200 mr. Uses charger CD V-750. By: Bendix, Landsverk.					
34.	CD V-730	Standard	None	\$4.75	OCD
<u>DESCRIPTION:</u> Self-reading gamma quartz-fiber dosimeter. Range 0-20 r. Uses charger CD V-750. By: Bendix, Landsverk.					
35.	CD V-740	Limited Std.	None	\$4.75	OCD
<u>DESCRIPTION:</u> Self-reading gamma quartz-fiber dosimeter. Range 0-100 r. Uses charger CD V-750. By: Bendix, Landsverk.					
36.	CD V-742	Standard	None	\$4.20	OCD
<u>DESCRIPTION:</u> Self-reading gamma quartz-fiber dosimeter. Range 0-200 r. Uses charger CD V-750. By: Bendix, Landsverk.					
37.	IM-9 ()/PD	Standard	F6665-537-6364 F6665-663-8101 F6665-243-8199		AMC
<u>DESCRIPTION:</u> 0-200 mr (gamma) quartz-fiber, self-indicating, pocket dosimeter. Charged by PP1578 radiacmeter charger. Size and Weight: 3 5/8" L x 7/16" Dia.; 2 oz. .By: Landsverk.					
38.	IM-9 (C) (E) (F) (G)	Limited Std. Standard Standard Standard	2Z6665-263-3941 2Z6665-624-4256 2Z6665-705-6068 2Z6665-909-7194	\$11.90	NAVELEX
<u>DESCRIPTION:</u> 0-200 mr (gamma) quartz-fiber, self-indicating, pocket dosimeter. Charged by PP-354 ()/PD and PP-4276/PD. Size and Weight: 3 1/2" L x 1/2" Dia.; Approximately 1/2 oz. By: Victoreen, Landsverk, and Bendix.					

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
39.	IM-93 ()/PD	Standard	F6665-570-5764	\$6.00	AMC
<u>DESCRIPTION:</u> Single barrel, quartz-fiber, self-indicating pocket dosimeter. Range: 0-600 r (gamma). Charged by PPL578 radiacmeter charger. Size and Weight: 4½" L x ½" Dia.; Approximately 2 oz. By: Bendix.					
40.	IM-107 ()/PD	Limited Std.	2Z6665-626-9738	\$6.95	NAVELEX
<u>DESCRIPTION:</u> 0-200 r quartz-fiber, self-indicating dosimeter. Size and Weight: 4" L x ½" Dia.; Approximately 1 oz. Charged by PP-354 ()/PD and PP 4276/PD. By: Bendix.					
41.	IM-135 ()/PD	Standard	2Z6665-621-0417	\$17.90	NAVELEX
	(A) Standard		2Z6665-910-7120		
<u>DESCRIPTION:</u> Self-indicating 0-5 r quartz-fiber dosimeter. Charged by PP-354 ()/PD and PP-4276/PD. Size and Weight: ½" Dia. x 4" L; Approximately 1 oz. By: Bendix and Landsverk.					
42.	IM-143 ()/PD	Standard	2Z6665-540-9004	\$10.44	NAVELEX
	(A) Standard		2Z6665-764-6395		
<u>DESCRIPTION:</u> Quartz-fiber dosimeter similar to IM-135 ()/PD except range is 0-600 r. By: Bendix and Landsverk.					
43.	IM-147 ()/PD	Standard	F6665-542-0729	\$7.50	AMC
<u>DESCRIPTION:</u> Single barrel, quartz-fiber, self-indicating pocket dosimeter. Range: 0-50 r (gamma). Charged by PPL578 radiacmeter charger. Size and Weight: Approximately ½" Dia. x 4½" L; Approximately 2 oz. By: Bendix.					
44.	IM-181/PD	Standard	2Z6665-868-8517	\$21.35	NAVELEX
<u>DESCRIPTION:</u> Quartz-fiber dosimeter similar to the IM-135 ()/PD except that the range is 0-1 r. By: Landsverk.					

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
------------	--------------	-------------------------	------------------	--------------------------	----------------------

Sub Section B-2: Non-Self-Indicating Dosimeters

45.	DT-60/PD	Obsolescent		\$1.00	NAVELEX
	(B) Standard		2Z6665-824-3479		
	(C) Standard		2Z6665-892-4421		
	(D) Standard		2Z6665-978-9637		

DESCRIPTION: Silver-phosphate glass dosimeter. Housed in plastic case and must be read on CP-95()/PD computer-reader. Range: 0-600 r. Size and Weight: Approximately 1½"Dia. x 3/8"L; Approximately 2 oz. By: Corning, Penberthy Instruments, Specialty Engineering, Industrial Electronics, and Electrospace Corporation.

46.	MX-2255/PD	Standard	F6665-882-3300	\$1.50	AMC
-----	------------	----------	----------------	--------	-----

DESCRIPTION: Filmbadge holder and filmbadge dosimeter. Plastic case with dental-size x-ray type film. Range: 2 mr to 2000 r. Issued, read and recorded by Lexington Film Badge Service, Lexington Signal Depot, Lexington, Ky. Used for personnel dosimetry during laboratory or technical operations. Worn by alligator clip. Size and Weight: 2¼" x 1 3/4" x 3/8"; 2 oz.

Sub Section B-3: Alarm Type Dosimeters

47.	IM-153()/PD	Standard	2Z6665-066-4448	\$259.00	NAVELEX
-----	--------------	----------	-----------------	----------	---------

DESCRIPTION: Alarm Dosimeter which uses in ion chamber detector and operates as a recycling dosimeter. Indicates total accumulated dose on a four digit register, and gives an alarm, either visual by a light or aural by a buzzer, when a preset dose has been reached. Range: 0-1,000 r with smallest increment 0.1 r. Powered by two JAN-BA-30, 1½ volt, commercial type "D" cells. Size and Weight: Approximately 7" x 4" x 2"; Approximately 2 lbs. By: Nucor and Nuclear Research Corp.

Sub Section B-4: Chargers and Readers

48.	CD V-750	Standard	None	\$3.70	OCD
-----	----------	----------	------	--------	-----

DESCRIPTION: A battery operated charger for all Civil Defense pocket dosimeters, CD V-138, CD V-730, CD V-740, and CD V-742. By: Bendix, Jordan, and Industrial Hardware.

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
49.	CP-95 ()/PD (A) Standard	Standard	2Z6665-171-9566 2Z6665-599-6313	\$240.00	NAVELEX
<u>DESCRIPTION:</u> Electronic type computer-indicator (reader) for DT-60 ()/PD Phosphor Glass Dosimeter. Range scales: 0-200 r; 0-600 r. Utilizes 110 V, 60 cycle, AC power supply. Size and Weight: Approximately 9" x 9" x 17"; Approximately 22 lbs. By: Admiral, Specialty Engineering, Nucor, and Electrospace.					
50.	PP-354 ()/PD (C) (E) Limited Std.	Limited Std.	2Z6665-171-7814 2Z6665-679-5628	\$16.73	NAVELEX
<u>DESCRIPTION:</u> Electrostatic Charger for all Navy quartz-fiber-type dosimeters. A limiting diode is used to control the maximum charging voltage and a heavy duty generator is employed. Size and Weight: Approximately 2½" x 2" x 1"; 5 oz. By: Chatham and Landsverk.					
51.	PP-1578(A)/PD	Standard	F6665-572-1177	\$14.00	AMC
<u>DESCRIPTION:</u> Electrostatic friction charger for all U.S. Army quartz-fiber self-reading dosimeters. With suitable adaptors can charge UK dosimeters. Size and Weight: 2¼" x 1¼" x 2½"; 4 oz. By: Landsverk.					
52.	PP-3679/U	Standard	F6665-050-1855	\$130.00	AFWL
<u>DESCRIPTION:</u> Piezoelectric crystal charger for self-indicating quartz-fiber dosimeters. A neon glow-discharge tube controls maximum charging voltage. Size and Weight: 2" x 2" x 1"; 5 oz. By: Bendix, Landsverk.					
53.	PP-4276/PD (A) Standard	Standard	2Z6665-788-5779 2Z6665-104-7246	\$25.00	NAVELEX
<u>DESCRIPTION:</u> Transistorized battery operated charger to charge all Navy quartz-fiber dosimeters. Size and Weight: 4"L x 4"W x 3½"D; 13.5 oz. By: Nucor, Nuclear Research Corporation, Chatterton, Allison, and E and M Company.					

SECTION C

MISCELLANEOUS RADIAC EQUIPMENT

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
------------	--------------	-------------------------	------------------	--------------------------	----------------------

Sub Section C-1: Calibration Sources

54.	AN/UDM-1A	Standard	2Z6665-537-8825	\$5,000.00	NAVELEX
-----	-----------	----------	-----------------	------------	---------

DESCRIPTION: 120 Curies of Cesium 137 gamma source and shield for depot calibration of radiac equipment. Normally requires a working space for setup and use of approximately 8' high x 10' wide x 25' long. May be used with either 15' or 20' of track, which is provided as part of the unit. Calibration unit itself occupies a space of approximately 5' high x 2½' wide x 6' long. Overall weight approximately 600 lbs. By: Nema-Clarke and U.S. Nuclear.

55.	AN/UDM-5	Standard	Not yet assigned	\$2,500.00	NAVELEX
-----	----------	----------	------------------	------------	---------

DESCRIPTION: Slow Neutron Flux Generator designed to provide a known flux density of slow neutrons. The generator consists of a plutonium/beryllium neutron source (80 grams) contained in a cubical cavity 15 inches on an edge. The cavity is surrounded by paraffin wax walls 10½" thick which, in turn, are housed in an aluminum container. Access openings for insertion of the source and detector are in the cover. Size and Weight: 39" x 39" x 39"; 1600 lbs. By: USNRDL

56.	AN/UDM-7A	Standard	2Z6665-066-4041 2Z6665-949-8560 2Z6665-119-1404	\$700.00	NAVELEX
-----	-----------	----------	---	----------	---------

DESCRIPTION: An alpha source set; fixtures, jigs, and procedures have been developed to facilitate calibrating all alpha radiacs in the Navy system. The source set consists of three, thin film, large area Pu²³⁹ sources and the resin film technique has been used in preparing the sources. Uniformity of alpha emission is better than 5 percent.

57.	AN/UDM-8	Standard	2Z6665-113-1264	\$400.00	NAVELEX
-----	----------	----------	-----------------	----------	---------

DESCRIPTION: Beta Source Set with fixtures and jigs; calibrates radiac sets responding to beta radiation. Source Set consists of five thin film, large area Tc⁹⁹ sources, calibrated in rem/hr at 1 inch from surface; 4, 0.4, 0.04, 0.004, 0.0004. By: Eon Corporation.

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
58.	CD V-784	Standard	None	\$31.75	OCD
<u>DESCRIPTION:</u> A low activity radioactive source set for demonstration purposes and training exercises. Consists of 6 Co ⁶⁰ sources of 5 mc each. By: Tracerlab.					
59.	CD V-786	Limited Std.	None	\$20.00	OCD
<u>DESCRIPTION:</u> A low activity radioactive source set for demonstration purposes and training exercises. Consists of 12 Co ⁶⁰ sources of from 0.5 to 5 mC, totaling approximately 30 mC. By: Reed Curtis.					
60.	TS-784 ()/PD	Standard	F6665-692-6601	\$2,000.00	AMC
<u>DESCRIPTION:</u> A 30 millicurie Strontium 90 beta source, with case and attachments for use in calibrating the AN/PDR-39() ion chamber survey instrument. With appropriate jigs, can be used to calibrate the AN/PDR-27, CD V-720, and IM-174/PD. By: Landsverk.					
61.	CD V-794-2	Standard	None	\$8,000.00	OCD
<u>DESCRIPTION:</u> Calibration unit containing approximately 130 curies of Cs ¹³⁷ in a depleted uranium shield. Provides four radiation intensity levels for calibrating portable radiation survey instruments. Inside the calibrator the radiation source has a fixed position relative to the survey meter under test. The specific strength of the radiation field in the exposure chamber is controlled through a rotary attenuator. The instruments are properly positioned in the chamber with fixtures. While a survey meter is in the radiation field it is calibrated via remote controls and meter readings observed directly through a lead-glass window in the exposure chamber door. All OCD type CD V-715 and CD V-717 survey meters are adjusted with the remote controls. Other type survey meters are calibrated by the zero method and by approximation. The nominal accuracy of the calibrator is maintained by periodically adjusting a decay compensator. Radiation levels of 0.4, 4, 40, and 400 r/hr are produced in the exposure chamber. By: Technical Operations.					
62.	TS-1189()/PD (A) Standard	Standard	2Z6665-679-0278 2Z6665-940-8777	\$168.00	NAVELEX
<u>DESCRIPTION:</u> Radiacmeter Test Chamber consists of a 0.7 mc Cesium 137 gamma source and container for checking of low-range self-indication dosimeters. Size and Weight: 3"Dia. x 3½" L; 8 lbs. Gamma intensity approximately 35 mr/min. Accuracy ± 10%. By: Victoreen Instrument Company, Tracerlab, and Nucor.					

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
63.	TS-1216 ()/UD (B) Standard (C) Standard		Not Assigned		NAVELEX
<u>DESCRIPTION:</u> Radiac Calibrator for shipboard use containing 30 curies of Cs ¹³⁷ . Radiation intensity in lead lined chamber is controlled by variable positioning of the source in a Mercury filled column. Size and Weight: 42 $\frac{1}{4}$ "L x 21"W x 45 $\frac{1}{4}$ "H; 2,000 lbs. By: American Machine and Foundry Company.					
64.	PAC-1S(AN/PDR-60) Calibration Standards Primary		F6665-Q83-9483	\$342.50	AFWL
<u>DESCRIPTION:</u> A set of four stainless steel plates 9 1/8" x 2 5/8" x 0.05". PuO ₂ is deposited on one side by tungsten filament evaporation. Uniformity is within 7% of mean for any sampled area. Activities are 20, 250, 2500 and 25,000 cpm/cm ² within 20%. Fabricators determination of actual activity and accuracy of determination is engraved on the plate. By: Eberline Instrument Co.					
65.	PAC-1S(AN/PDR-60) Calibration Standards Secondary		F6665-767-7497	\$236.00	AFWL
<u>DESCRIPTION:</u> A set of four stainless steel discs 2" Dia. x 1/8" thick with a 1" Dia. x 0.02" depressed plutonium deposition area. Deposition is by tungsten filament evaporation. For calibration of PAC-1S (AN/PDR-60) and PAC-2GA (3G), (4G), (5G) or AN/PDR-54. Activities are 1100, 1.4x10 ⁴ , 1.4x10 ⁵ , and 1.4x10 ⁶ cpm within 20%. By: Eberline Instrument Co.					
66.	CD V-797	Standard	None		OCD
<u>DESCRIPTION:</u> Calibrator for calibrating the CD V-711 Remote Sensor Radiation Meter. The calibrator consists of a simulator unit which generates currents of the same magnitude as produced by the detector unit, a source unit which is used to standardize the r/hr range, and two coaxial "T" adapters for connecting the simulator unit to the CD V-711 indicator unit. The source unit of the CD V-797 calibrator contains approximately 15 millicuries of Cesium-137. By: Nuclear Chicago.					

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
------------	--------------	-------------------------	------------------	--------------------------	----------------------

Sub Section C-2: Special Purpose Equipment

67.	Beta Counting System	Standard	None	\$3,000.00	NAVELEX
-----	----------------------	----------	------	------------	---------

DESCRIPTION: Laboratory hardware and accessories (except scaler) for preparation and counting of various types of samples. Used aboard nuclear powered submarines. Consists of 7 kit types in following quantities: 2 Shield Assemblies, Radiac Detector, MX-2321/UD; 1 Radioactive Test Sample, MX-2323/UD; 1 Calibrated Absorber Kit, MK-595/UD; 1 Gaseous Activity Sampling Kit MK-596/UD; 1 Liquid Concentration Kit, MK-597/UD; 1 Accessories Kit, MD-594/UD; 2 Maintenance Kits, MK-598/UD. Different quantities of same kits used for nuclear surface ships and other activities associated with nuclear power program. Procedures outlined in publication NAVSHIPS 93393C, "Counting Techniques, Procedures and Instrumentation for Measuring the Activity of Radioactive Samples Aboard Nuclear Powered Ships." By: New York Naval Shipyard.

68.	CP-297/UD	Standard	2Z6665-585-9799	\$1,368.00	NAVELEX
-----	-----------	----------	-----------------	------------	---------

DESCRIPTION: Small militarized scaler for computing and indicating the total number of random speed pulses received from GM and scintillation counters. Count rate 2×10^5 counts/sec; count accumulation 256×10^4 ; variable input sensitivity to 50 millivolts to 50 volts; resolution time for repetitive negative pulses 5 microseconds; preset time capability 0.1 minute to 999.9 minutes. Size and Weight: Approximately 12" x 21" x 17"; Approximately 88 lbs. 110 volts AC, 60 cycles, and consumes 165 watts. By: Nuclear-Chicago Corporation, Nuclear Electronics Corp., and Gulf Aerospace.

69.	CP-792()	Standard	Not Assigned	\$1,760.00	NAVELEX
-----	-----------	----------	--------------	------------	---------

DESCRIPTION: Small militarized scaler, solid state circuitry, for counting and indicating pulses from GM and scintillation counters. Maximum count rate 10^5 counts/sec; count accumulation to 10^6 ; input sensitivity 200 millivolts to 65 volts; preset time capability to 999.9 minutes being procured in lieu of CP-297/UD. Size and Weight: 21" x 8" x 17"; 50 lbs. By: Nucor and Multronics.

70.	HD-251/UD	Standard	2Z6665-783-5913	\$442.00	NAVELEX
	(A) Standard		2Z6665-949-5133		

DESCRIPTION: Air sampler for collection of aerosols on filter paper. Portable line operated (115 vac). Register indicates volume of air sampled. Filter paper holder designed to accommodate end window probe of AN/PDR-27 series Radiac Set, or paper may be removed and counted with scaler. Used in determination of concentration of beta activity in air suspected of aerosol contamination. Size and Weight: Approximately 1 cu foot; Approximately 24 lbs. By: Vitro Electronics, Division of Vitro Corporation, Electro-Neutronics, Inc., Futuronics, and TD Associates.

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
71.	HD-732	Standard	None	\$450.00	NAVELEX
<u>DESCRIPTION:</u> Air sampler for collection of aerosols on filter paper. Portable, line operated (115 vac). Register indicates volume of air sampled. Filter paper holder designed to accommodate end window probe of AN/PDR-27 series Radiac Set, or paper may be removed and counted with scaler. Used in determination of concentration of beta activity in air suspected of aerosol contamination. Size and Weight: Approximately 1 cubic foot; 20 lbs. By: Electro-Neutronics Inc.					
72.	T-289 (T-286)	Standard	F6665-581-2032 F6665-580-9681 F6665-863-9719	\$12,000.00	DASA
<u>DESCRIPTION:</u> A semi-portable air sampling rate meter set for detecting radioactive gases using a flow through coaxial ion chamber. Includes an external alarm and a paper tape recorder. Power: 115 volt-60 cps AC. Range: 5 to 10,000 uc/m ³ or 1 mrep/hr to 2 rep/hr with overall accuracy of 10%. Total system is 26 cubic feet. Weight: 422 lbs including auxiliaries and unit spares.					
73.	T-290	Standard (A) Standard	F6665-735-5752 F6665-715-1034	\$1,710.00 1,540.00	DASA
<u>DESCRIPTION:</u> Open ion chamber air samplers which indicate the presence of tritium. Powered by two BT-1 mercury cells. Size and Weight: 8/3" x 7" x 12"; 20 lbs including accessories. Range: Up to 100,000 uc/m ³ but not intended for precise measurement.					
74.	T-329A	Standard	F6665-629-3414	(unknown)	DASA
<u>DESCRIPTION:</u> A portable apparatus for determination of tritium content in water and/or body fluids. Ion chamber detector. Sensitivity is 50 to 10,000 uc/liter. Calibration is accurate to 10% and effected by tritium water bottled for this purpose. Power: 115 volt, 50-60 cps AC. Size and Weight: 19" x 16" x 12"; 57 lbs. With auxiliaries and unit spares: 3.6 cubic feet and 82 lbs.					
75.	Battery Charger for PAC-1S or AN/PDR-60	Standard	F6130-691-0873	\$40.00	AFWL
<u>DESCRIPTION:</u> A portable 105-115 volt, 50-60 cps line operated battery charger used to recharge type 6665-705-5228 battery pack (Yardney Silvercells), and provide circuitry for battery cell formation cycling. By: Eberline Instrument Co. as BC-1.					

ITEM NO	NOMENCLATURE	USAGE CLASSIFICATION	FEDERAL STOCK NO	APPROXIMATE UNIT COST	SPONSORING AGENCY
76.	CD V-705	Standard	None	\$17.63	OCD

DESCRIPTION: Loudspeaker attachment for the CE V-700, GM Survey Meter. It is used as a training aid to amplify the pulses usually heard in the headphone and make them audible to a group of people. Uses two "D" cells. Size and Weight: Approximately 4' x 4' x 2"; Approximately 1 lb. By: Jordan Electronics and Ling-Tempco-Vought.

SECTION D

RESEARCH AND DEVELOPMENT ITEMS

ITEM NUMBER	NOMENCLATURE	SPONSORING AGENCY	RESEARCH AGENCY
-------------	--------------	-------------------	-----------------

Sub Section D-1: Survey Meters

77.	007X	OCD	Nuclear-Chicago
-----	------	-----	-----------------

DESCRIPTION: Automatic remote sensor radiation meter with numeric readout, gamma only. Recycling ion chamber sensors are linked to the readout by means of land-line or radio. Remote capability over 10 miles. Range: 0.25 to 10,000 r/hr. (This is the design of an instrument. Hardware is not available.)

78.	Gamma Rate Survey Meter	OCD	Thermo Electron Corporation
-----	----------------------------	-----	--------------------------------

DESCRIPTION: The design of a gamma rate meter which uses a passive sensor. The sensor, which is solid, responds to Compton recoil effect and requires no electric potential as do ion chambers and Geiger-Mueller tubes. Compared to an ion chamber of the same size, the solid sensor is relatively insensitive; however, large-size solid sensors are cheap to build and lend themselves to fixed installation where minimal power is available. A research prototype is available.

79.	Gamma Rate Survey Meter	OCD	NRDL
-----	----------------------------	-----	------

DESCRIPTION: A solid state gamma radiation monitoring instrument, solid state detector diode plus associated instrument electronics to meet general OCD high-range survey meter specifications. Range: 0-500 r/hr. Basic development by Westinghouse Electric Corporation. (This is the design of an instrument. Hardware is not available.)

Sub Section D-2: Dosimetry

80.	CP-696 ()/PD	AMC	USAECOM
-----	---------------	-----	---------

DESCRIPTION: Read out device for the DT-236 ()/PD. The reader is a single unit which can accept the dosimeter, open it, provide the proper excitation for the gamma and neutron detecting elements, read the results of excitations, and present the readings. The gamma detecting glass is read by the fluorimetric method, using UV excitation. The neutron detecting diode is read by measuring its forward voltage drop at constant current conditions. The reading process does not change the dosage recorded on the dosimeter. It is expected that the reader will be type classified in FY 70.

ITEM NUMBER	NOMENCLATURE	SPONSORING AGENCY	RESEARCH AGENCY
81.	DT-236 ()/PD	AMC	USAECOM

DESCRIPTION: A high range (1 to 1000 r), indirect reading personnel dosimeter for measuring both neutron and gamma dose by means of separate solid-state devices. The gamma detector is silver-activated phosphate glass. The neutron detector is a wide-based silicon junction diode. Both detecting elements are encased in a tamper-proof bullet-shaped tube which is worn suspended from the dog-tag chain. The dosages recorded are permanent. It is expected that this item will be type classified in FY 73.

82.	DT-284(XN-1) CP-748(XN-1)	NAVELEX	Edgerton, Germ- eshausen and Grier
-----	------------------------------	---------	---------------------------------------

DESCRIPTION: Radiation sensitive element is a luminescent solid which stores incident energy at imperfections in the solid. The stored energy is released when the phosphor is heated. A reader is used to heat the sensitive element and then read and records the information. Range: 2mr-10,000 r. Weight: (dosimeter) 2 oz. Size subject to future decision. Basic development by Naval Research Laboratory. The development contract has been completed and models have been evaluated with satisfactory results except for mechanical problems associated with automatic print-out of serial numbers. The system will replace film badges if service approved.

Sub Section D-3: Special Purpose Meters

83.	AN/PDR-69	AFWL	Texas Nuclear (Division of Nuclear-Chicago)
-----	-----------	------	--

DESCRIPTION: The Radiac Set will augment alpha particle surveys through detection and measurement of L-X-rays and low energy gamma rays emitted by fissionable materials. It will feature two, single-channel pulse height analyzers (PHA) that are switch-selectable and it will have a dynamic range sufficient to measure concentration of Pu-239 contaminant ranging from 0.2 - 20,000 microcuries per square meter with a digital-readout in counts per minute (cpm). The Radiac Set will consist of a scintillation-type detector probe (7 lbs), an electronics unit (8 lbs including power supply, amplifiers, PHA subassemblies, and display circuitry), a miniature strip chart recorder, an external battery pack, a detachable audible indicator and a carrying case. Total weight: 35 lbs. Power Source: Five D-cells. Development will be completed in FY-71.

ITEM NUMBER	NOMENCLATURE	SPONSORING AGENCY	RESEARCH AGENCY
84.	AN/ADR-6	AMC	USAECOM
<p><u>DESCRIPTION:</u> The aerial Radiac Instrument System consists of an aerial radiac set plus auxiliary equipment designed to provide ground dose-rate gamma radiation data from 1.0 rad/hr to 1000 rad/hr over radioactive fallout areas. It is designed for operation in drone or manned aircraft. The set performs the functions of detection, height-correction, metering, alarm, and recording and is designed to operate with existing telemetry and radar altimeter equipment. It is expected that the aerial radiac instrument system will be type classified in FY 71.</p>			
85.	AN/GDQ-3	AMC	USAECOM
<p><u>DESCRIPTION:</u> The Recording Radiation Monitor and Automatic Radiation Alarm System is a high-range, gamma dose rate measuring system to provide a means for continuous monitoring at fixed and semi-fixed installation outside the field Army Area. The system will accommodate at least 10 sensors capable of being employed at remote locations for measuring radiation dose rates, recording equipment which shall provide a permanent record of the dose rates, automatic alarms which shall be actuated when radiation reaches a predetermined dose rate, and necessary ancillary equipment such as connectors and cables. The system will be man-portable without use of special lifting equipment.</p>			
86.	AN/TDQ-T1	AMC	NTDC
<p><u>DESCRIPTION:</u> Radiac Trainer Set designed to simulate physical appearance and operation of Radiacmeter IM-174A/PD. Consists of main pattern simulator (radio transmitter) hot spot simulators (radio transmitters) and simulated survey meters (radio receivers). Directional or omnidirectional antennas used on MPS. Omnidirectional antennas only used on HSS and SSI. MPS powered by vehicular battery; HSS and SSI powered by self-contained batteries. Frequency range 137-144MHz. Transmission range up to 10 miles. Developed by Naval Training Devices Center and Fairchild Camera and Instrument for Army.</p>			
87.	AN/VDR-1	AMC	USAECOM
<p><u>DESCRIPTION:</u> This radiac set will measure gamma radiation dose-rate from 1 millirad/hr to 1000 rad/hr and will detect beta radiation. The set, which will consist of a probe and mounting hardware, is being designed to enable personnel to make vehicular or dismounted radiological surveys and to perform area, personnel, food, water and equipment radiological monitoring. A sensor will be internal to the ratemeter and will be operated when dismounted area surveys are required. The probe mounted in a tubular case and a coil cord with an input connector will be part of the equipment. This probe may be used for personnel and equipment monitoring for decontamination. An audible alarm will be integral to the set and a visual alarm will be provided for special applications. It is expected that the ground vehicular radiac set will be type classified in FY-71. This instrument is scheduled to replace both the IM-174/PD and the AN/PDR-27J.</p>			

ITEM NUMBER	NOMENCLATURE	SPONSORING AGENCY	RESEARCH AGENCY
88.	IM-185-UD	AMC	USAECOM
<p><u>DESCRIPTION:</u> This instrument is a self-indicating pocket dosimeter which measures the mixed gamma and neutron dose from 0-600 rad. It may be read at any time after exposure. The dosimeter will be dose rate and energy independent. It is a fountain-pen-size quartz-fiber dosimeter similar to the IM-93, but with a tissue equivalent vacuum chamber operating on the SEMIRAD (Secondary Electron Mixed Radiation Dosimeter) principle. Primary electrons resulting from gamma radiation and recoil protons resulting from neutron radiation cause low energy secondary electrons to be emitted from the walls of the vacuum chamber. The secondary electrons are collected causing the quartz fiber electroscope to discharge. Size: 5/8 inch diameter by 4.75-inches long. Weight: 2.3 ounces. This is a joint Army and Air Force development. Advanced development was conducted in FY-66. Engineer design tests were conducted at White Sands and USAECOM during FY-66 and FY-67. It is expected that the tactical dosimeter will be type classified in FY-73. The instrument is scheduled to replace the IM-93. The radiac detector charger PP-4370()/PD is a combined charger and ion-pump power supply for use with Dosimeter IM-185.</p>			

89.	CD V-781 Mark II	OCD	Nuclear-Chicago
<p><u>DESCRIPTION:</u> Improved CD V-781 type aerial survey meter utilizing recycling ion chamber and a digital readout system. For use in low flying aircraft. Range: 5 mr/hr to 25 r/hr (Cockpit exposure rate). By: Nuclear-Chicago.</p>			

Sub-Section D-4 Miscellaneous

90.	AN/UDM-2	AMC	USAECOM
<p><u>DESCRIPTION:</u> A light weight, (less than 40 lbs.) portable field calibration check device capable of calibrating all Army standard radiac instruments. It utilizes Sr 90 - Y 90 radio-isotope as the source of ionizing radiation. It is expected that the field calibrator will be type classified in FY 70. This instrument will replace the radiac calibrator set TS-784.</p>			

91.	CD V-751X	OCD	Bendix Corp
<p><u>DESCRIPTION:</u> Piezoelectric Crystal Charger for quartz-fiber self-indicating dosimeters. Requires no batteries. Plastic lens light collection system. Approximately 4" x 4" x 2".</p>			

ITEM NUMBER	NOMENCLATURE	SPONSORING AGENCY	RESEARCH AGENCY
92.	Radiac Detector Charger PP 4370/PD	AMC	Bendix Corp

DESCRIPTION: Charger provides charging voltage and magnetic field plus 3000 volts potential for electronic vacuum pumping of SEMIRAD (i.e. IM-185) self-indicating, quartz-fiber, dosimeters. Power: 115 volts a.c., 10 trickle charged 1.2 volt rechargeable C-cells enable portable operation. Size: 8½" x 5½" x 4½".

93.	SCRED Detector	OCD	Therma Electron Engineering Corp
-----	----------------	-----	-------------------------------------

DESCRIPTION: A Solid Compton Recoil Electron Detector as a batteryless dose rate measuring device for gamma radiation measurement.

SECTION E

SUPPLEMENTARY INFORMATION

Sub Section E-1: Definition of Usage Classification

<u>Standard</u>	Best available item of its type at the present time. Currently procured and carried in stock as a standard item.
<u>Alternate Standard</u>	Second Best available item of its type at the present time. Currently procured and carried in stock as a substitute standard item.
<u>Tentative Standard</u>	A limited number can be purchased until a more satisfactory device has been developed.
<u>Limited Standard</u>	Acceptable item for usage. Maintained by use of available spare parts to use up existing stocks. No longer procured to replace depleted stocks.
<u>Obsolescent</u>	No longer considered a standard item. No longer procured or maintained, but items on hand may be used.

Sub Section E-2: Organization Abbreviations

AFWL	Air Force Weapons Laboratory, Kirtland Air Force Base, New Mexico 87117
AMC	Army Materiel Command, Washington, D. C. 20315
DASA	Defense Atomic Support Agency, Washington, D. C. 20305
NAVELEX	Naval Electronic Systems Command, Washington, D. C. 20360
OCD	Director of Civil Defense, Office of the Secretary of the Army, Washington, D. C. 20305
OOAMA	Ogden Air Materiel Area, Hill Air Force Base, Utah 84401
SAAMA	San Antonio Air Materiel Area, Kelly Air Force Base, Texas 78241
USAECOM	U. S. Army Electronics Command, Fort Monmouth, New Jersey 07703

SECTION F

INDEX

<u>EQUIPMENT NOMENCLATURE</u>	<u>EQUIPMENT TYPE</u>	<u>SPONSORING AGENCY</u>	<u>ITEM NUMBER</u>	<u>PAGE NUMBER</u>
AN/ADR-6	Aerial Survey System	AMC	84	22
AN/GDQ-3	Monitor and Alarm System	AMC	85	22
AN/PDR-27	Low Range Survey Meter	NAVELEX	1	1
AN/PDR-39	High Range Survey Meter	AMC	4	2
AN/PDR-43	High Range Survey Meter	NAVELEX	5	2
AN/PDR-45	High Range Survey Meter	NAVELEX	6	3
AN/PDR-47	Neutron Detector	NAVELEX	19	6
AN/PDR-49	Neutron Detector	NAVELEX	20	6
AN/PDR-56	Alpha Detector	NAVELEX	15	5
AN/PDR-59	Underwater Survey Meter	NAVELEX	25	7
AN/PDR-60	Alpha Detector	SAAMA, AFLC	17	5
AN/PDR-63/PD	High Range Survey Meter	NAVELEX	7	3
AN/PDR-64	Neutron Detector	NAVELEX	21	6
AN/PDR-65	High Range Survey Meter	NAVELEX	8	3
AN/PDR-66	Low Range Survey Meter	NAVELEX	2	2
AN/PDR-68	High Range Survey Meter	NAVELEX	9	3
AN/PDR-69	X-Ray Detector	AFWL	83	21

EQUIPMENT NOMENCLATURE	EQUIPMENT TYPE	SPONSORING AGENCY	ITEM NUMBER	PAGE NUMBER
AN/PDR-70	Neutron Detector	NAVELEX	22	6
AN/PDR-T6	Training Device	AMC	30	9
AN/SDR-1	Shipboard Radiac System	NAVELEX	24	7
AN/SDR-2	Shipboard Radiac System	NAVELEX	24	7
AN/TDQ-T1	Trainer	AMC	86	22
AN/UDM-1A	Calibration Source	NAVELEX	54	14
AN/UDM-2	Calibration Device	AMC	90	23
AN/UDM-5	Calibration Source	NAVELEX	55	14
AN/UDM-7A	Calibration Source	NAVELEX	56	14
AN/UDM-8	Calibration Source	NAVELEX	57	14
AN/VDR-1	Survey Meter	AMC	87	22
Battery Charger	Battery Charger	AFWL	75	18
Beta Counting System	Laboratory Kit	NAVELEX	67	17
Broken Arrow Response Kit	Radiac Kit	AFWL	23	7
CD V-138	Dosimeter	OCD	33	10
CD V-457	Training Kit	OCD	31	9
CD V-700	Low Range Survey Meter	OCD	3	2
CD V-705	Loud Speaker Attachment	OCD	76	19
CD V-711	Remote Sensor Radiation Meter	OCD	27	8
CD V-711 Mark III	Remote Sensor Radiation Detector	OCD	28	8

EQUIPMENT NOMENCLATURE	EQUIPMENT TYPE	SPONSORING AGENCY	ITEM NUMBER	PAGE NUMBER
CD V-715	High Range Survey Meter	OCD	10	4
CD V-717	High Range Survey Meter	OCD	11	4
CD V-720	High Range Survey Meter	OCD	12	4
CD V-730	Dosimeter	OCD	34	10
CD V-740	Dosimeter	OCD	35	10
CD V-742	Dosimeter	OCD	36	10
CD V-750	Charger	OCD	48	12
CD V-751X	Charger	OCD	91	23
CD V-781 Mark II	Aerial Survey Meter	OCD	89	23
CD V-781 Model 1	Aerial Survey Meter	OCD	29	8
CD V-784	Source Set	OCD	58	15
CD V-786	Source Set	OCD	59	15
CD V-794-2	Calibration Source	OCD	61	15
CD V-797	Calibrator	OCD	66	16
CP-95/PD	Reader	NAVELEX	49	13
CP-297/UD	Scaler	NAVELEX	68	17
CP-696/PD	Dosimeter Reader	AMC	80	20
CP-748(XN-1)	Thermoluminescent Dosimeter	NAVELEX	82	21
CP-792	Scaler	NAVELEX	69	17
DT-60/PD	Dosimeter	NAVELEX	45	12
DT-236/PD	Dosimeter	AMC	81	21
DT-284(XN-1)	Thermoluminescent Dosimetry System	NAVELEX	82	21

EQUIPMENT NOMENCLATURE	EQUIPMENT TYPE	SPONSORING AGENCY	ITEM NUMBER	PAGE NUMBER
DT-302/PDR-56	Detector Probe	NAVELEX	16	5
Gamma Rate Survey Meter	Survey Meter	OCD	78	20
Gamma Rate Survey Meter	Survey Meter	OCD	79	20
HD-251/UD	Air Sampler	NAVELEX	70	17
HD-732	Air Sampler	NAVELEX	71	18
IM-9	Dosimeter	NAVELEX	38	10
IM-9/PD	Dosimeter	AMC	37	10
IM-93/PD	Dosimeter	AMC	39	11
IM-107/PD	Dosimeter	NAVELEX	40	11
IM-135/PD	Dosimeter	NAVELEX	41	11
IM-143/PD	Dosimeter	NAVELEX	42	11
IM-147/PD	Dosimeter	AMC	43	11
IM-153/PD	Alarm Dosimeter	NAVELEX	47	12
IM-174/PD	High Range Survey Meter	AMC	13	4
IM-179/PD	High Range Survey Meter	SAAMA, AFLC	14	4
IM-181/PD	Dosimeter	NAVELEX	44	11
IM-185/UD	Dosimeter	AMC	88	23
MG-3	Remote Area Monitor	SAAMA, AFLC	26	8
Model 281A-L	Training Device	OOAMA, AFLC	32	9
MX-2255/PD	Film Badge	AMC	46	12
007X	Remote Sensor Radiation Meter	OCD	77	20

EQUIPMENT NOMENCLATURE	EQUIPMENT TYPE	SPONSORING AGENCY	ITEM NUMBER	PAGE NUMBER
PAC-1S Primary	Calibration Standards	AFWL	64	16
PAC-1S Secondary	Calibration Standards	AFWL	65	16
PAC-2GA;(3G); (4G);(5G)	Alpha Detector	SAAMA, AFLC-	18	5
PP-354/PD	Charger	NAVELEX	50	13
PP-1578/PD	Charger	AMC	51	13
PP-3679/U	Charger	AFWL	52	13
PP-4276/PD	Charger	NAVELEX	53	13
PP-4370/PD	Charger	AMC	92	24
SCRED Detector	Dose Rate Meter	OGD	93	24
T-289	Air Sampler	DASA	72	18
T-290	Air Sampler	DASA	73	18
T-329A	Tritium Detector	DASA	74	18
TS-784/PD	Calibration Source	AMC	60	15
TS-1189/PD	Calibration Source	NAVELEX	62	15
TS-1216/UD	Calibration Source	NAVELEX	63	16

DISTRIBUTION LIST

ADDRESSEE

NO OF COPIES

ARMY

Commandant, Chemical Corps School, Chemical Corps Training,
Ft. McClellan, Alabama 36205. 350

Acting Chief of Staff for Force Development, Department of
the Army, ATTN: Mr. Norris Sills, Room 3A480 Pentagon,
Washington, D. C. 20310 100

NAVY

Commander, Naval Electronic Systems Command, ATTN: Mr.
C. Hollander, Code 0516, Washington D. C. 20360 125

AIR FORCE

Director, Air Force Weapons Laboratory, ATTN: WLBN,
1Lt Pike, Kirtland Air Force Base, New Mexico 87117 100

DEPARTMENT OF DEFENSE

Executive Secretary, Military Liaison Committee, P. O.
Box 1814, Washington, D. C. 20301 1

Director, Weapons Systems Evaluation Group, 400 Army Navy
Drive, Arlington, Virginia 22202. 1

U.S. Documents Officer, Office of the United States,
National Military Representative, SHAPE, APO, New York,
N.Y. 09055 1

Commandant, The Industrial College of the Armed Forces,
Fort McNair, Washington, D. C. 20310 1

Commandant, Armed Forces Staff College, ATTN: Secretary
Norfolk, Virginia 23511 1

Director, Defense Atomic Support Agency, ATTN: Document
Library, Washington, D. C. 20305. 5

Commander, Field Command, DASA, ATTN: FCDV, Sandia Base,
Albuquerque, New Mexico 87115 133

Director, Defense Atomic Support Agency, ATTN: STRA,
Washington, D. C. 20305 5

ADDRESSEENO OF COPIES

Commander, Test Command, Defense Atomic Support Agency, Sandia Base, Albuquerque, New Mexico 87115.	5
Director, Defense Research and Engineering, Washington, D. C. 20301	4
DDC, Cameron Station, Alexandria, Virginia 22214.	25
Commander-in-Chief, EUCOM, APO, New York, N. Y. 09128 . . .	1
Commander-in-Chief, Pacific, c/o Fleet Post Office, San Francisco, California 96401	1
Director, Armed Forces Radiobiology Research Institute, National Naval Medical Center, Bethesda, Maryland 20014 . .	6
Joint Chiefs of Staff, Special Projects Branch (J-8), Washington, D. C. 20301	2

OTHER GOVERNMENT

Director, National Bureau of Standards, ATTN: Document Library, Washington, D. C. 20234.	5
Director, U. S. Atomic Energy Commission, ATTN: Div of Biology and Medicine, Washington, D. C. 20545	2
Director, Office of Civil Defense, Office of the Secretary of the Army, Nucleonics Division, Technical Services Directorate, Washington, D. C. 20310.	75
U. S. Atomic Energy Commission, Reports Section, Head- quarters Library, Room G017, Washington, D. C. 20545. . . .	2

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2A. REPORT SECURITY CLASSIFICATION	
Headquarters, Defense Atomic Support Agency Washington, D. C. 20305		UNCLASSIFIED	
2. REPORT TITLE		2B. GROUP	
List of Military and Civil Defense Radiac Devices		N/A	
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
None			
5. AUTHOR(S) (First name, middle initial, last name)			
Research and Development Liaison Directorate Field Command, Defense Atomic Support Agency			
6. REPORT DATE	7A. TOTAL NO. OF PAGES	7B. NO. OF REFS	
August 1969	40	N/A	
8A. CONTRACT OR GRANT NO.		8B. ORIGINATOR'S REPORT NUMBER(S)	
A. PROJECT NO. N/A		DASA-1248 (Revised) (1969)	
C.		8B. OTHER REPORT NO(S) (Any other numbers that may be associated with this report)	
D.		N/A	
10. DISTRIBUTION STATEMENT			
Each Transmittal of this Report outside the Agencies of the U.S. Government must have prior approval of the Director, Defense Atomic Support Agency, Washington, D. C. 20305			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
Qualified requesters may obtain copies of this report from DDC		Defense Atomic Support Agency	
13. ABSTRACT			
A compilation of radiac devices currently available to the Department of Defense is presented. The list is separated into rate meters, dosimeters, miscellaneous radiac equipment for calibration and special purposes, and major research and development items. Each item includes nomenclature, classification, federal stock number, cost, sponsoring agency and a description of the item.			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

UNCLASSIFIED

Security Classification

UNCLASSIFIED
Security Classification